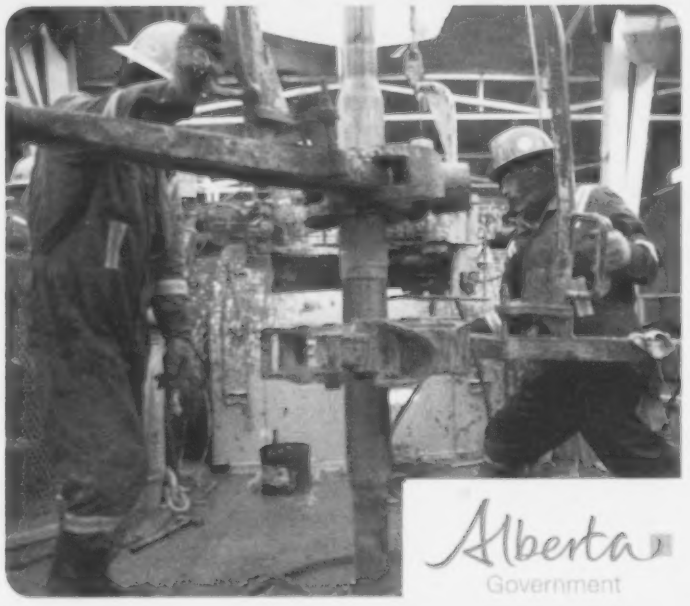
ALBERTA OIL & GAS INDUSTRY QUARTERLY UPDATE

FALL 2013

Reporting on the period: June 28, 2013, to Sept. 26, 2013



Alberta Government

All about oil and gas*

Technology is setting the stage for another boom in Alberta's non-oil sands oil and natural gas industry. Until the last few years, the sun had slowly been setting on Alberta's conventional oil and natural gas industry. Oil production had declined from a peak of 1.43 million barrels per day in 1973 to a low of around 460,000 barrels per day in 2010.

But things are changing for the better, as increased implementation of long horizontal wells and multistage fracturing in tight oil plays across the province—not to mention new provincial royalty incentives to encourage drilling—has crude oil drilling activity and production on the upswing. Although natural gas activity has slowed due to weak prices, Alberta is poised to benefit once a price correction occurs.

In fact, the tight oil revolution that began in the United States and gradually moved north into Alberta marks the dawning of a new day for oil and natural gas exploration and production in the province.

In Alberta, the new technology is being used in an increasing number of oil plays. Among the most advanced plays are the Cardium in west-central Alberta, the Beaverhill Lake Carbonates near Swan Hills, the Viking in east-central Alberta and at Red Water north of Edmonton, in the Pemiscot at Princess in southern Alberta, and at Judy Creek in northwestern Alberta. Additionally, emerging plays include the Alberta Bakken in the southern reaches of the province, and in oil windows in the Duvernay and Montney shale.

High drilling activity in these areas will offset the steep decline in Alberta conventional production that would otherwise be expected.

In 2012, 2,854 successful oil wells were drilled, a decrease of 10.2 per cent from 2011. The number of new wells placed on production for 2012 was 3,107. From this total, 2,379 new horizontal oil wells (including those using multistage fracturing technology) were brought on production in 2012, an increase of 31 per cent from the 2011 level of 1,818 horizontal wells. This raises the total number of horizontal wells to 9,664.

The number of new vertical oil wells placed on production is projected to be 728 in 2013 and is expected to decline to 520 wells in 2022. This well count is about 50 per cent lower than last year's forecast and reflects the view that many new wells will be horizontal wells, with many of those using multistage fracturing technology.

The number of new horizontal oil wells is projected to decrease from 2,379 in 2012 to 2,310 in 2013, and to decline gradually to 2,080 in 2022. The forecast number of horizontal oil wells has significantly increased relative to last year's forecast and reflects actual activity in 2012, industry's projection of increased horizontal drillings and anticipated continued strong crude oil prices.

The number of new natural gas well connections dropped significantly in 2012 and has not been this low since 1992. In 2012, 1,189 new conventional natural gas connections were placed on production in the province, a decrease of 49 per cent from 2011. This is the sixth straight year of reductions in conventional gas connections.

The number of horizontal gas wells drilled and connected in the province is increasing as a percentage of the total. In 2012, about 53 per cent of new gas connections were horizontal wells compared with 25 per cent in 2011 based on the revised well connection counts.

The numbers of new conventional gas connections over the forecast period are projected to be 1,100 in 2013 and gradually increase to 1,425 by 2022. The forecast number of connections is significantly lower than last year's forecast of 3,800 largely due to the shift from vertical and directional wells to more capital-intensive, but highly productive, horizontal wells.

Although low natural gas prices have reduced drilling activity in Alberta for that commodity the past few years, when prices rebound the province will be well positioned to capitalize.

Canada is the third-largest natural gas producer in the world, with about 80 per cent of the country's gas being produced in Alberta. According to provincial figures, at the end of 2012, remaining established reserves of conventional natural gas stood at 33 trillion cubic feet, while remaining established coalbed methane (CBM) gas reserves stood at 2.4 trillion cubic feet. The province estimates the remaining ultimate potential of marketable conventional natural gas at 74 trillion cubic feet.

Although conventional natural gas remains a very important part of Alberta's natural gas supply, horizontal drilling and multistage fracturing now allow for development of natural gas from a new source—unconventional natural gas resources. Aside from CBM, Alberta's unconventional natural gas resources include tight gas (natural gas trapped in low-permeability sedimentary rocks, such as sandstone or limestone) and shale gas (trapped in shale rock). ■

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*This publication contains information about Alberta's oil and gas industry, excluding oil sands. For information on the oil sands, please refer to the Alberta Oil Sands Industry Quarterly Update on this website.

Oil plays

The Alberta Energy Resources Conservation Board (ERCB) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.7 billion barrels, representing about one-third of Canada's remaining conventional reserves.

This is a year-over-year increase of 9.5 per cent, resulting from production, reserves adjustments and additions from drilling that occurred during 2011.

In 1994, based on the geological prospects at that time, the ERCB estimated the ultimate potential of conventional crude oil to be 19.7 billion barrels. Given recent reserve growth in low permeability, or tight oil plays, the ERCB believes that this estimate may be low.

Starting in 2010, total crude oil production in Alberta reversed the downward trend that was the norm since the early 1970s. In 2010 and 2011, light-medium crude oil production began to increase as a result of increased, mainly horizontal, drilling activity with the introduction of multistage hydraulic fracturing technology. The successful application of this technology and increased drilling resulted in total crude oil production increasing by seven per cent in 2011. Alberta's production of conventional crude oil totalled 179 million barrels in 2011.

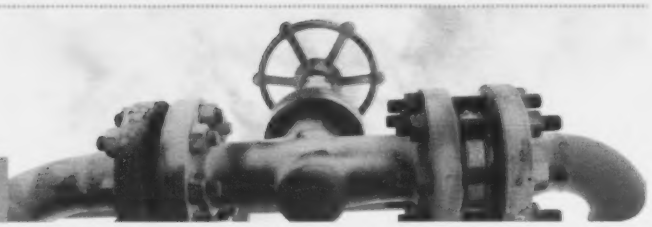
Natural gas plays

Alberta's natural gas bounty is plentiful and is produced from both conventional and unconventional reserves. While the vast majority of the province's natural gas is still produced from conventional sources, growing natural gas volumes from coal, shale and tight formations will also be strong contributors going forward.

Alberta has a large natural gas resource base, with remaining established reserves of about 33 trillion cubic feet and estimated potential of up to 500 trillion cubic feet of natural gas from the coalbed methane resource. In addition, a large-scale resource assessment of shale gas potential in Alberta is underway and could significantly add to the natural gas prospects for the province.

GOVERNMENT

UPDATE



ENERGY EAST ANNOUNCEMENT A WIN FOR CANADA

Premier Alison Redford issued the following statement in response to the announcement that TransCanada Corporation is proceeding with the Energy East Pipeline project to Quebec and New Brunswick.

"I am very pleased with [the] announcement that Energy East is moving forward. My government made a commitment to the project as part of our efforts to build new markets and get a fairer price for the oil resources Albertans own. This is truly a nation-building project that will diversify our economy and create new jobs here in Alberta and across the country.

"The partnerships we have seen develop across the country on projects like Energy East are the clearest examples yet of the Canadian Energy Strategy in action. That's why I've been pushing the strategy—to spur cooperation between the provinces in getting Canada's energy onto international markets, to get fairer prices and, in turn, be able to provide the high quality of living Albertans and Canadians deserve. Building new markets is a key part of our government's Building Alberta Plan.

"At [the recent] Council of the Federation meeting, we reached consensus on a Canadian Energy Strategy and agreed on 10 action areas for moving the strategy forward. I'm proud of what we have achieved so far, and I will continue working with other premiers to build new energy export markets. All Canadians benefit from a strong energy economy, and we are stronger working together."

PREMIERS REDFORD AND CLARK WORKING TOGETHER TO GROW ALBERTA AND BRITISH COLUMBIA RESOURCES SECTORS

British Columbia Premier Christy Clark and Alberta Premier Alison Redford announced they have appointed a working group led by the two top energy officials from each province to develop recommendations related to energy exports and opening new export markets. Clark emphasized that the two provinces have a common interest in the responsible development and export of energy resources.

In creating the working group, Alberta and British Columbia identified the shared goal of opening new markets and expanding export opportunities for oil, gas and other resources. Recommendations will be presented to the premiers later this year.

Alberta Government

BUILDING FORT MCMURRAY

As part of the Redford government's commitment to build Alberta, the province is announcing an allocation of Crown lands to the Regional Municipality of Wood Buffalo that will make an area twice the current size of Fort McMurray available for much-needed development.

The land, known as the Urban Development Sub-Region (UDSR), will encourage housing in new communities, commercial ventures, vital infrastructure, and parks and recreational areas, as well as the jobs needed to further develop the fastest-growing city in Canada.

The additional land, covering over 55,000 acres, will be available for sale to the Regional Municipality of Wood Buffalo, allowing Fort McMurray to expand to the east, south and west. The land is expected to meet the growth needs of the municipality for over 25 years.

The land made available was determined based on resource analysis, municipal growth plans, and consultation with First Nations and with stakeholders, including the industry and the public. The region creates a balance of urban growth with responsible energy development, allowing for safe communities to be built and the local economy to prosper.

Fort McMurray will become an even greater place to work, live and raise families. As land is allocated from the region over the coming decades, the province and the regional municipality is well equipped to coordinate future development with the province's infrastructure planning. The UDSR also gives industry a long-term vision for future urban development in the area that is vital to their planning and investment in the area.

ALBERTA LEADS IN PIPELINE SAFETY

An independent review has confirmed that Alberta leads in pipeline safety and provides the most thorough overall ➤

Government update *continued*

pipeline regulatory regime of all assessed jurisdictions. Alberta's high regulatory standards for pipeline infrastructure guide the activities of all companies doing business in the province to ensure the health and safety of Albertans.

The report, a comprehensive third-party review conducted by Group 10 Engineering Ltd., concluded that Alberta has become a leader in establishing best practices to manage the industry appropriately. It also concluded that while all the examined jurisdictions conform to pipeline requirements established by the Canadian Standards Association, there is no one-size-fits-all approach on how to best ensure pipeline safety.

The review contained 17 recommendations intended to further improve the integrity and reliability of Alberta's pipeline infrastructure. Most of the recommendations fall under the responsibility of the Alberta Energy Regulator (AER), which has already begun to address them.

In addition to acting on recommendations in the report, Alberta Minister of Energy Ken Hughes will also ask the AER to lead the development of a management system to ensure operators are using leading-edge information technology to respond quickly and effectively to pipeline incidents. The system will have the ability for real-time tracking and tracing the history of pipeline equipment. It will mitigate risk and prevent future incidents, and will be integrated into the reporting requirements of the regulators.

AER TO ENSURE EFFICIENT, COMPREHENSIVE ENERGY REGULATION

The Alberta Energy Regulator (AER) was officially launched on June 17, 2013, after the Government of Alberta proclaimed the Responsible Energy Development Act, ushering in a new era in energy regulation.

The AER brings a new governance structure that will achieve the benefits of strong corporate oversight and independent adjudication of energy applications throughout the hearing process.

The announcement is the first step in a phased approach toward full implementation of the AER with additional regulatory functions to be added over the coming months.

The AER immediately takes on all regulatory functions previously carried out by the Energy Resources Conservation Board and will assume additional responsibilities in the areas of public lands, water and the environment over the next 12 months.

The AER ensures the safe, efficient, orderly and environmentally responsible development of hydrocarbon resources over their entire life cycle. This includes allocating and conserving water resources, managing public lands and protecting the environment while providing economic benefits for all Albertans.

AER LAUNCHES ONLINE INCIDENT REPORTING ON AER.CA

The Alberta Energy Regulator (AER) has launched an online tool to post all pipeline incidents as well as any energy-related incidents that may impact the public. This will enhance regulatory transparency, improve access to information, and ensure that Albertans are better informed about the regulator's activities and role during incident response.

PUBLIC INPUT SOUGHT TO IMPROVE CARBON CAPTURE RULES

The Alberta government is seeking public input to help ensure the province has the strongest possible rules governing carbon capture and storage (CCS).

Alberta Energy has completed an extensive review that resulted in over 70 conclusions and recommendations aimed at improving CCS regulation in Alberta, and it is now providing an opportunity for the public to comment on proposed changes.

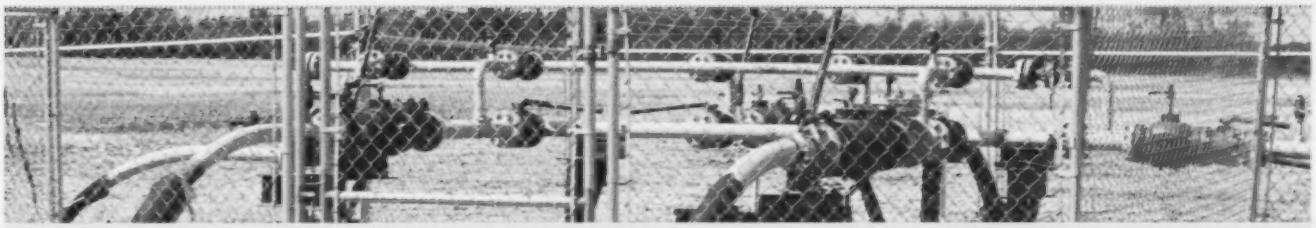
"Carbon capture and storage is a critical part of our government's commitment to responsible energy development and reducing our carbon footprint. It will also generate more royalty revenues from enhanced oil recovery with CO_2," said Minister of Energy Ken Hughes.

"We must ensure CCS is conducted in the safest and most environmentally responsible way possible. That's why we have been working with world experts and local leaders to look at how we can improve the regulations we have now, and it's why we are asking the public for their say."

Alberta has committed $170 million in 2013-14, and a total of $1.3 billion over 15 years, to fund two large-scale CCS projects that will help reduce CO_2 emissions from oil sands refining.

The CCS Regulatory Framework Assessment, announced in 2011, looked at both the current rules for CCS in Alberta and best practices from around the world. Over 100 global experts from industry, environmental groups, academics and government participated in the review.

The public feedback period will extend to October 3. ■



What's new in the oil and gas industry

LAND SALE NETS MORE THAN $13 MILLION

The Alberta government pulled in $13.69 million at its September 11 land sale, which was highlighted by successful bids totalling $6.28 million by Enerplus Corporation for three licence parcels.

Producers acquired 24,206 hectares at the auction at an average price of $565.41 per hectare. Year-to-date, the industry has spent $542.55 million in Alberta to acquire 1.7 million hectares at an average price of $318.37. To the same point of 2012, the government treasury had attracted $836.09 million on 2.2 million hectares at an average price of $380.61.

Bidding under its own name, Enerplus acquired three licences for a combined $6.28 million. The first of these parcels attracted a bid of $3.5 million for a 1,024-hectare parcel. Rights included petroleum and natural gas (P&NG) below the base of the Cardium Formation to the base of the Bluesky-Bullhead.

The second parcel, a 512-hectare licence, included sections four and five for P&NG below the base of the Cardium to the base of the Bluesky-Bullhead.

It attracted a bonus of $1.03 million and an average price of $2,006.10. The triumvirate of parcels was rounded out by another 512-hectare licence that received a bid of $1.75 million. It included sections 20 and 21 for P&NG to the base of the Bluesky-Bullhead. This parcel's average price was $3,421.01.

PIPELINE MONITORING SYSTEM TO BE AUDITED

Alberta's auditor general will be conducting an audit into the provincial government's monitoring systems to ensure compliance with the province's pipeline regulations.

"Whether or not it is necessary, it's going to happen," Alberta Minister of Energy Ken Hughes said, adding he welcomes the engagement of the auditor general into the pipeline matter and, in his experience, reports from the auditor general's office would be helpful for the ministry and the government.

"One can never take anything for granted in terms of a complex industry like the pipeline industry," he said. "We have more pipelines in Alberta than any other jurisdiction certainly in Canada, and the pipeline system hasn't always been without its flaws.

"So, as we are on the path of continuously improving the performance, continuously improving the regulatory insight and oversight, yet another independent review from a different perspective—that being the auditor general's perspective—is welcome."

In August, the province released Group 10 Engineering Ltd.'s independent review, which stated Alberta leads the country in pipeline safety and provides the most thorough overall pipeline regulatory regime of all assessed jurisdictions.

WILRICH PLAY CONTINUES TO GROW

The Edson, Alta.-area Wilrich play is an important and growing part of the portfolios for at least two companies presenting at the recent Peters & Co. Limited 2013 Energy Conference.

Paul Wanklyn, president and chief executive officer of Cequence Energy Ltd., told the conference his company has about 31 sections of land in the Edson/Ansell-area Wilrich play, where there has been "just a flurry of industry activity" recently, largely driven by Perpetual Energy Inc.

He said his company's recent 15-14 well delivered a 60-day initial-production rate of 5.9 million cubic feet per day, and all of Cequence's lands in the area are proving quite prospective. The company is currently drilling its first step-out well at the location at 14-19.

"We brought in a partner, and they will be carrying us largely through the evaluation phase of this play, so we're in a pretty good position to be carried along for a number of wells as we evaluate the size and quality of this discovery."

Susan Riddell Rose, president and chief executive officer at Perpetual, told the conference that one of the top priorities in 2013 for her company is positioning for growth in those Edson liquids-rich gas assets, hopefully building on stronger gas prices next year and beyond.

"The Wilrich is our second key priority and the other area where we are investing aggressively for growth," she said, adding at West Edson the company has increased compression capacity to 30 million cubic feet per day.

"When we start up our standalone gas plant in late September or early October, we'll actually see the wells we're drilling now start to fill that infrastructure. We should cap out in December at the full capacity of the infrastructure—15 million cubic feet per day net to us.

"So West Edson economics are very attractive to us, and we think there is a 200 per cent rate of return." ➤

HUSKY TO RAMP UP ACTIVITY

Husky Energy Inc. wants to double its production from western Canadian resource plays to approximately 50,000 barrels of oil equivalent per day over the next few years.

"We have assembled a large land position in oil- and liquids-rich gas plays and believe they have a lot of potential," Rob Symonds, senior vice-president for western Canada production, said. Current production from resource plays is more than 24,000 barrels of oil equivalent per day, including 7,000 barrels per day of oil.

The "needle-mover" for Husky is Ansell, Alta., a liquids-rich play with multiple prospective zones. Husky recently injected an additional $150 million of capital into the play in order to accelerate it, Symonds said.

The area currently produces about 14,000 barrels of oil equivalent per day through a combination of vertical and horizontal wells, and the company hopes to double that over the coming years, said Symonds.

Other potential needle-movers are at Rainbow in northwestern Alberta and Slater River in the central Mackenzie Valley of the Northwest Territories, where there are much higher resource densities. However, "it's still very early days on those plays," he cautioned.

"In both these plays, the rocks are equivalent to the Duvernay [in Alberta]," said Symonds.

"We believe that we are in a fairway for oil- and for liquids-rich gas given the size of our land total."

Husky has about 400,000 net acres (more than 600 net sections) at Rainbow with estimated total petroleum initially in place of 20 million to 30 million barrels of oil equivalent per section. There are approximately 2,500 locations at four wells per section.

RETOOLED SOUR GAS PLANTS TAKING ON NEW ROLE

Alberta's midstream operators are looking at how they can retool old, underused sour natural gas plants to meet the needs of today's producers for increased natural gas liquids (NGL) fractionation capacity from gas that is either sweet or only slightly sour, a recent NGL conference heard.

"These legacy gas plants have the capacity available, [and] they are regionally proximate to the Duvernay and the Montney zones," David Williams, vice-president and general manager of SemCAMS, said in a presentation to the NGL Markets & LNG Export Congress Canada 2013.

"Key questions being asked by many in this Montney region is 'Can these old facilities that were designed for different gas compositions handle this new-era gas?'"

Most of the plants were built in the 1970s for high-sulphur content gas that was fairly lean, and the NGL recoveries were only what were needed to meet the hydrocarbon dewpoint on downstream pipelines. There was no market for ethane and only a limited market for NGLs, and their value was similar to that of the British thermal unit content of the gas, he said.

Sulphur production in western Canada peaked in 1999 and since then has fallen by about one-third despite increased sulphur production from the oil sands, the conference heard.

"The implication is that many sour gas processing plants that need sulphur to fill their sulphur recovery units are approaching the turndown levels at which they can't operate within their licensed recovery levels," said Williams, whose company operates two plants in northwestern Alberta.

The result, he suggested, could be processing plant shutdowns and consolidations.

Although the use of existing plants will avoid permitting delays, facilities will have to adapt to handle new-era gas, said Williams.

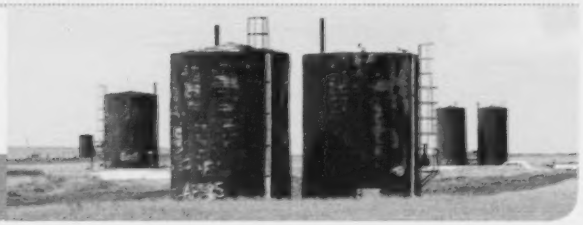
That will include the ability to handle gas with less sulphur, to provide a higher NGL recovery and to handle more liquids, primarily condensate. There also is a need to ensure producers have access to markets, he said.

PEMBINA PIPELINE TO BUILD NEW SHALLOW-CUT FACILITY

Pembina Pipeline Corporation plans to construct, own and operate a new 100-million-cubic-feet-per-day shallow-cut gas plant and associated natural gas liquids (NGLs) and gas-gathering pipelines near its existing Musreau facility, which is part of the company's west-central Alberta Cutbank Complex.

"The facility is expected to cost $110 million, and 100 per cent of the operating capacity is contracted under long-term agreements," said Bob Michaleski, Pembina's chief executive officer. He added that the new facility would be designed to handle propane-plus and would yield about 4,200 barrels per day of NGL for transportation on Pembina's conventional pipelines. ■

TECHNOLOGY UPDATE



INITIATIVE TO PROMOTE PIPELINE TECHNOLOGY DEVELOPMENT

As Canadian transmission pipelines increasingly are thrust into the spotlight, an industry-government group is looking at how an open and pan-Canadian collaborative effort can encourage innovation in pipeline technologies.

"Fundamentally, it's about constructing a more robust research network," Brenda Kenny, president of the Canadian Energy Pipeline Association (CEPA), said in an interview.

CEPA and Alberta Innovates - Technology Futures are co-chairs of the newly formed Canadian Pipeline Technology Collaborative.

"There is a very active informal research network today about pipeline research, but I think we can do a better job and make it more effective and more transparent," Kenny said. "That's really where we're going."

According to Kenny, Canadian pipelines are attracting an estimated $100 million per year in technology development, much of that between major pipelines and major suppliers. One focus is on advancing internal line inspection technologies, but there also are major investments in technologies such as coatings and leak detection, she said.

COMPANY MAKES STRIDES IN CO_2 CAPTURE

CO_2 Solutions Inc. said it has demonstrated that its patented enzyme-enabled carbon capture technology uses at least one-third less energy than existing methods and can withstand the rigours of industrial application.

The company will now proceed to the large-bench scale testing phase of one half-tonne per day of CO_2 capture wherein the same performance metrics will be validated under flue gas conditions. Following successful large-bench validation, the project will move to field pilot-scale testing (approximately 15 tonnes per day of CO_2 capture) in 2014.

The company said its testing captured 90 per cent of the CO_2 emissions from natural gas combustion at a typical in situ oil sands operation.

The 33 per cent reduction was achieved without any process optimization, and further savings are expected upon optimization and operational integration in later phases, it said. The project target was to demonstrate a cost reduction of 25 per cent relative to existing carbon capture technologies.

The solvent is not only significantly less expensive than conventionally used ones, but is also far superior from an environmental and solvent-management standpoint, added CO_2 Solutions.

According to the company, it has demonstrated that its patented enzyme-accelerated process could be deployed efficiently at low temperatures, allowing for a simplified process configuration in which the enzyme showed excellent activity and longevity in the solvent used.

MX MANUFACTURING CENTRE OPENS

Packers Plus Energy Services Inc. has officially opened the doors to its MX Manufacturing Centre in Edmonton.

In addition to the production capabilities and innovative technological components of the facility, the MX Manufacturing Centre was also built with the employees in mind. The new facility employs over 200 staff in Edmonton and is the company's largest manufacturing centre worldwide.

The centre includes the world's first robotic assembly of its type, QA, and a testing and torqueing system including a proprietary traceability method developed by Packers Plus in conjunction with one of its key suppliers. The MX facility is the first of its kind in the world, the company said.

"Our MX manufacturing process provides the ability to determine the source of materials traced back to the mill of origin for any component of any tool worldwide. For example, we can determine the material certification and the steel mill for any component of an [oil and gas] tool that was shipped to China or Saudi Arabia," said Marlon Leggott, director of manufacturing. ■

LABOUR UPDATE

LABOUR MARKET INFORMATION

Alberta's seasonally adjusted unemployment rate was 4.8 per cent in August 2013, up 0.3 percentage points from July and up 0.4 percentage points from the same month last year. This rate was the second lowest in Canada, behind Saskatchewan's 4.2 per cent. The national rate was 7.1 per cent, down 0.1 percentage points from the previous month. The unemployment rate increased because the labour force increased by 22,300 people, and employment increased by 15,200 from July to August 2013.

Seasonally adjusted employment in the forestry, fishing, mining, and oil and gas industries increased by 6,600 from July to August of 2013.

Strong interprovincial and international migration gave Alberta the largest population growth in Canada for the sixth consecutive quarter. As of April 1, Alberta's population was an estimated 3,965,339, an increase of about 34,000 residents over the first three months of 2013. This increase includes 13,438 interprovincial migrants and 8,084 international migrants.

CHANGES TO THE ALBERTA IMMIGRANT NOMINEE PROGRAM (AINP)

Strategic Recruitment Stream—New Post-Graduate Worker Category

International graduates can now apply without needing an employer-supported application. Applicants must be currently working in Alberta, have a current and valid post-graduation work permit, and their occupation must be an eligible National Occupational Classification 0, A, B or C skill level, among other requirements.

See the Post-Graduate Worker Category AINP page for details.

Alberta Work Experience Category

More skilled and semi-skilled occupations have been added, including optional trades. Experience criteria has also been streamlined for all eligible occupations.

See the Alberta Work Experience Category AINP page for details.

Employer-Driven Stream

Criteria has been streamlined for:

- International graduates;
- Managers/supervisors in the service, retail and food service industries; and
- Plasterers, drywallers and upholsterers.

See the International Graduate Category AINP page and Skilled Worker Category AINP page for details.

CHANGES TO THE TEMPORARY FOREIGN WORKERS PROGRAM

The Government of Canada implemented several changes to the Temporary Foreign Worker program including: a fee for labour market opinion (LMO) processing, language restriction, and new advertising requirements and additional questions on the LMO application.

EXTENSION OF THE OCCUPATION SPECIFIC PILOT

Under the occupation-specific pilot project, as part of the Temporary Foreign Worker Annex agreement, recruiting for some occupations does not require an LMO. The application deadline for this pilot program has been extended.

EXPEDITED PROCESSING AND CREDENTIAL RECOGNITION FOR INTERNATIONAL TRADE WORKERS

Alberta Apprenticeship and Industry Training now recognizes five U.S.-earned trade credentials as equivalent to the corresponding Alberta Trade Certificates. Two Irish trade credentials will also be recognized as equivalent to an Alberta trade certificate. Additionally, 10 Irish trade credentials now qualify for expedited assessment in the Qualification Certificate Program.

CONSTRUCTION JOB EXPO

The Western Canada Construction Job Expo is a chance for employers in the construction sector to meet pre-screened, high-quality job seekers at two invitation-only events in Ireland. These events are custom-built by Canadian construction associations to serve the specific employment needs of the industry.

U.K. MARKET FACT SHEET

Are you recruiting internationally but have no idea where to start? The United Kingdom recruiting fact sheet provides information on the labour supply, migration trends, credential recognition and recruitment tips for top international labour pools to help you make informed recruitment decisions.

CONTACT US:

Contact us for questions, concerns or more information at EAE.findlabour@gov.ab.ca. ■

Oil and gas statistics

DRILLING RIG COUNT BY PROVINCE/TERRITORY

Western Canada, September 10, 2013

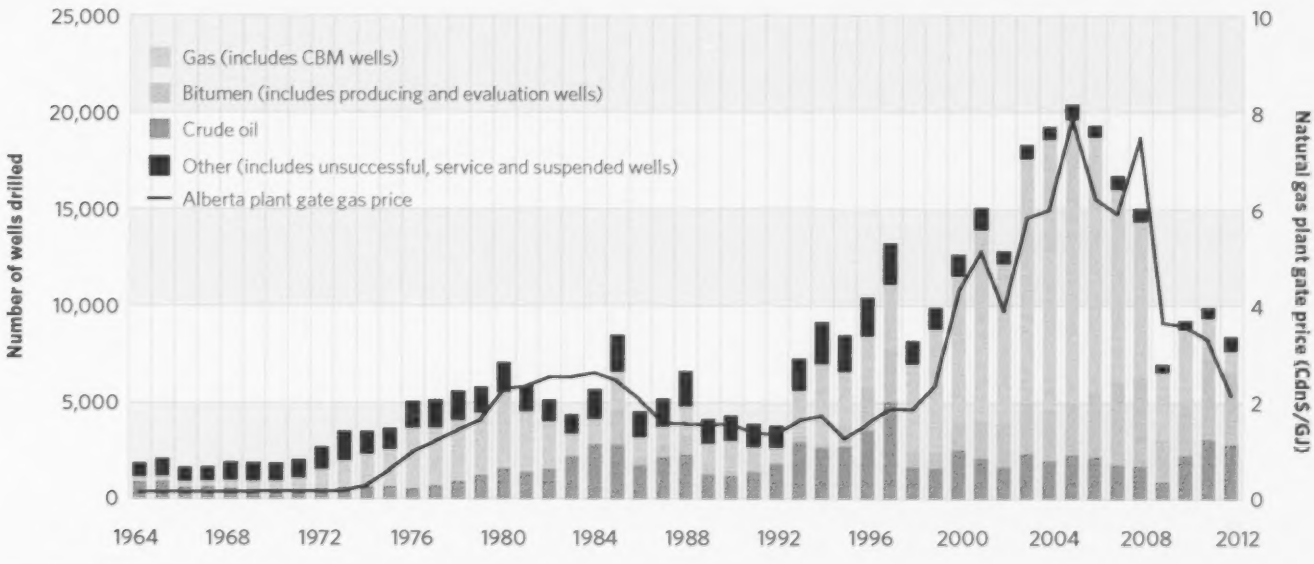
	ACTIVE	DOWN	TOTAL	ACTIVE
Western Canada				(Per cent of total)
Alberta	273	311	584	47%
British Columbia	50	19	69	72%
Manitoba	10	12	22	45%
Saskatchewan	65	71	136	48%
WC Total	398	413	811	49%

OIL & GAS WELL COMPLETIONS BY PROVINCE/TERRITORY

Western Canada, August 2013

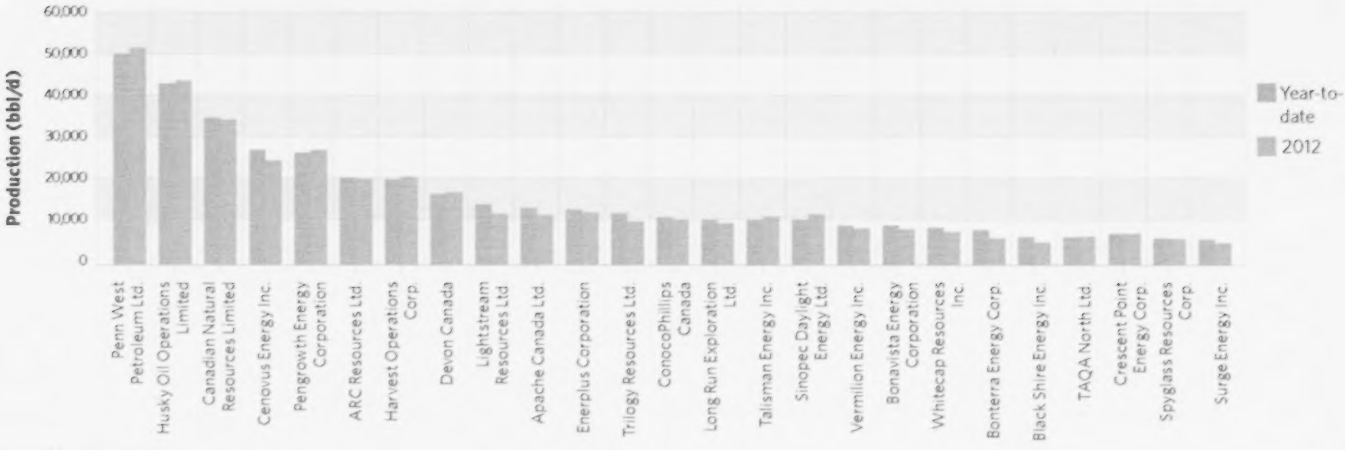
	OIL WELLS		GAS WELLS	
Western Canada	August 2012	August 2013	August 2012	August 2013
Alberta	386	394	90	46
British Columbia	9	1	42	25
Manitoba	81	60	0	0
Saskatchewan	297	362	3	1
Total	**773**	**817**	**135**	**72**

DRILLING ACTIVITY IN ALBERTA, 1964 - 2012



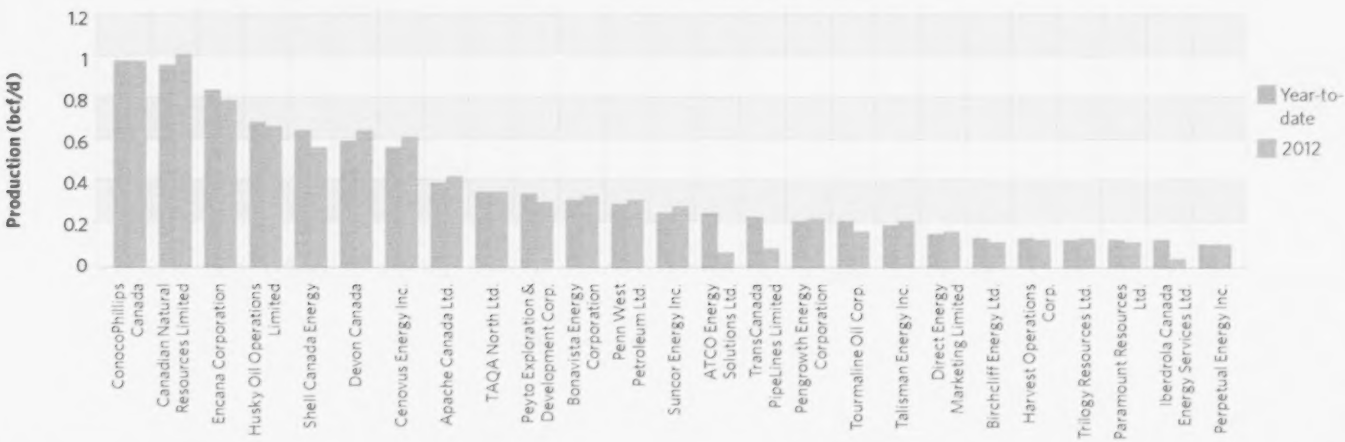
For a glossary of oil and gas terms and other industry information, go to the *Daily Oil Bulletin* toolkit:
http://www.dailyoilbulletin.com/common/toolkit.asp

TOP 25 OIL PRODUCERS IN ALBERTA (AS OF MARCH 2013)

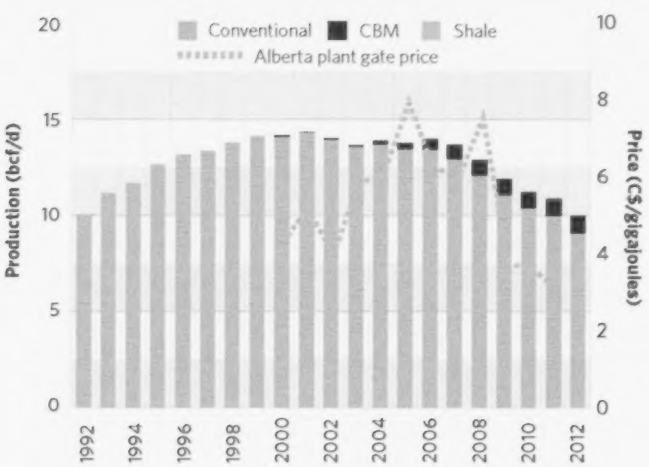


TOP 25 GAS PRODUCERS IN ALBERTA (AS OF JUNE 13, 2012)

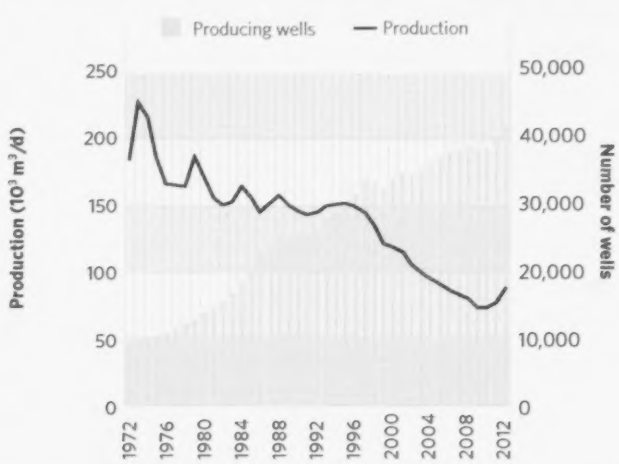
Only gas production reported from oil and gas batteries, gas gathering systems and gas plants is considered. Bitumen facilities, straddle plants and fractionation plants are excluded, as is gas from commercial gas storage schemes.



ALBERTA MARKETABLE GAS PRODUCTION

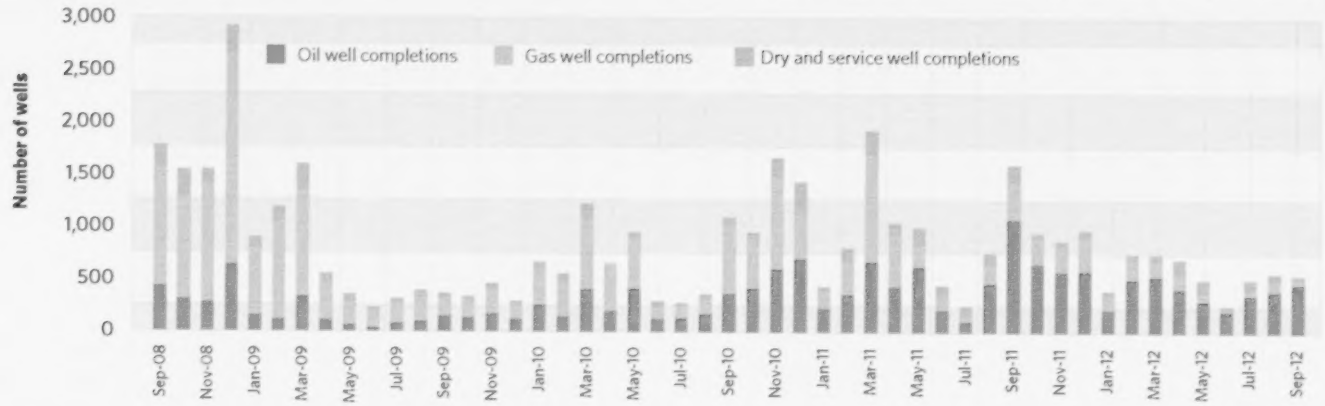


ALBERTA CRUDE OIL PRODUCTION AND PRODUCING WELLS



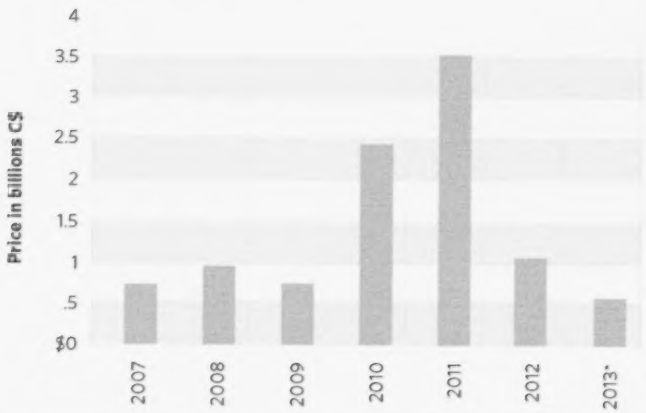
ALBERTA WELL COMPLETIONS

There were 524 well completions in September 2012, down 66 per cent from the 1,511 completions reported in September 2011. To date, there have been 3,301 oil completions, down 18 per cent from the 4,045 oil completions a year ago, and 852 gas completions, down 68 per cent from the 2,787 completions a year ago.



ALBERTA CROWN LAND SALES

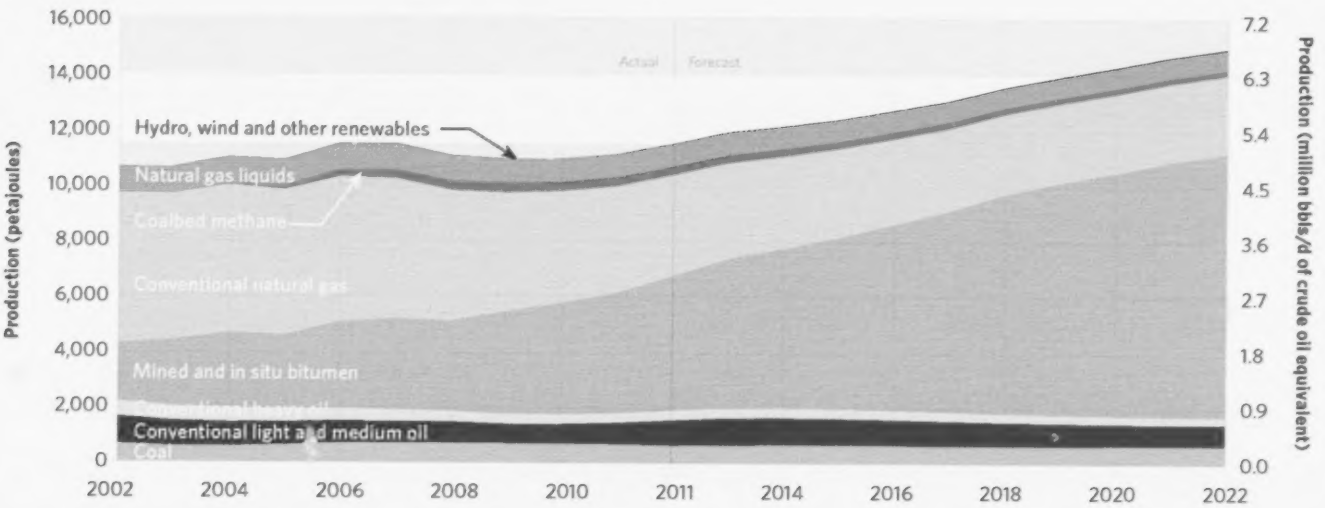
P&NG rights, excluding oil sands



WELL DEPTHS

	GAS			OIL		
	Total metres	Wells drilled	Av. well depths (m)	Total metres	Wells drilled	Av. well depths (m)
2007	10,756,598	9,628	1,117	4,080,460	3,059	1,334
2008	9,517,507	7,886	1,207	3,931,655	2,890	1,360
2009	4,764,321	3,400	1,401	2,501,875	1,848	1,354
2010	6,037,031	3,801	1,588	5,803,292	3,681	1,577
2011	5,005,591	2,185	2,291	8,941,754	5,008	1,785

TOTAL PRIMARY ENERGY PRODUCTION IN ALBERTA



Promising tight oil plays

Alberta's crude oil potential was once thought to be declining—but not anymore. With technological advancements, both conventional fields and new oil-laden fields that were thought to be uncommercial with pre-existing vertical drilling technology are now the hot crude plays in the province. Here's a look at some of the more promising tight oil plays that have been unlocked via horizontal drilling and multistage fracturing technology.

DRAINING THE CARDIUM

Coaxing crude oil out of the ground from the Cardium formation underlying the Pembina oilfield has always been a matter of brute force.

The Pembina #1 discovery well, drilled by Socony-Mobil in the winter of 1953, required a fracture treatment consisting of diesel fuel and 3,000 pounds of sand pumped at 1,800 pounds per square inch of pressure to get oil flowing to the wellbore in commercial quantities.

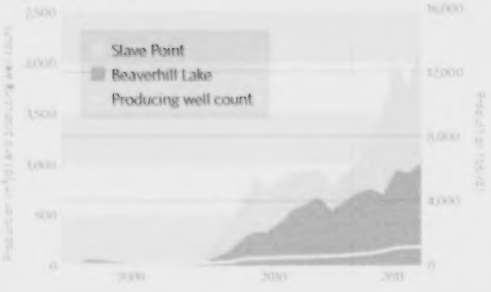
Almost 60 years later, oil explorers are still at it, cracking sandstone as deep as 9,400 feet beneath the surface in the hopes of striking pay. Only now the wells drilled are horizontal and stretch as far as a mile through the reservoir. Massive fracture treatments consist of 20 tons of sand—more than 12 times as much as was pumped downhole in the Pembina #1—mixed with specialized fluids. And as many as 20 stages are fracture stimulated one after another along the horizontal leg using on average 10,000 horsepower of pumping might.

The size of the prize is huge. The Alberta Energy Resources Conservation Board says the Cardium had 10 billion barrels of original oil in place with around 1.7 billion barrels produced. However, those numbers were derived from

BEAVERHILL LAKE/SLAVE POINT CARBONATE

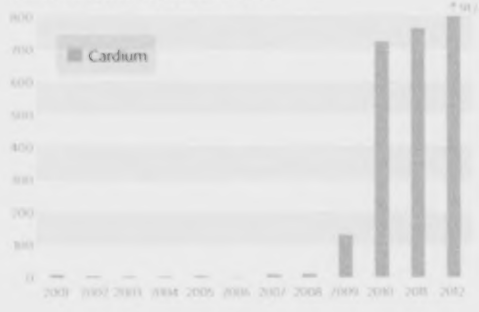
HORIZONTAL WELL LICENCES

TIGHT OIL PRODUCTION

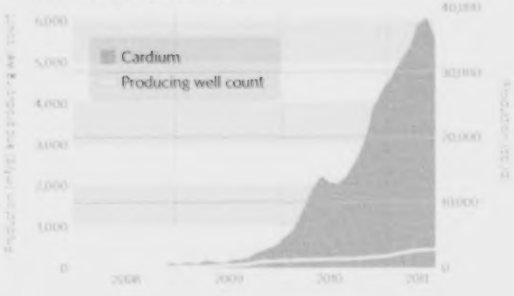


CARDIUM

HORIZONTAL WELL LICENCES



TIGHT OIL PRODUCTION



All data as of November 2011

historical records from vertical drilling in the play. Estimates now suggest the Cardium could contain as much as 15 billion barrels of oil, and expect 20–30 per cent of that oil could ultimately be recovered.

RETURN TO SWAN HILLS

The Beaverhill Lake carbonate play in the Swan Hills north of Edmonton is another hot tight oil play in central Alberta. Home Oil Company originally discovered the North Swan Hills field in 1956. Amoco Corporation and Gulf Oil Corporation discovered the South Swan Hills unit in 1959. Combined, the two fields had around four billion barrels of oil in place.

Producers are using a 14-stage fracture stimulation program with a retrievable multi-fracturing tool that allows full wellbore access later if needed. More and more acid is being pumped in each fracture stage to open up more reservoir. Operators are now injecting as much as 1,200 cubic metres of acid per stage. The acid treatment is custom designed for the formation rock. Jet pumps are being used to enhance cleanup after the fracture stimulation to mitigate any formation damage, and multi-well pads are being used to cut costs and environmental footprints.

PIERCING THE VIKING

Another major play taking shape in central Alberta is in the Colorado Group, in the eastern reaches of the province. The Viking oil play at Halkirk and Redwater has mainly entered development mode while in other areas it remains in exploration mode. Given the strength of oil prices in this market, the Viking will be targeted by more and more operators providing new well data and evolving the play in the province.

In 2012, WestFire Energy Ltd., which in October 2012 amalgamated with Guide Exploration Ltd. to become Long Run Exploration Ltd., has been the premier Viking player in Alberta. At Redwater, WestFire holds 62 net sections of land. In 2012, the company's Viking wells achieved marked improvement in initial production rates, thanks to its modified completion methods.

Penn West Petroleum also has a significant position in the Viking oil play. On the Alberta side, production results from the gassy-oil wells drilled in 2012 continue to be encouraging, reports the company. During the year, the company expanded its gas-handling infrastructure to support its active 2013 drilling programs.

Novus Energy Inc. recognizes the vast potential of the Viking, and the company recently amassed 46 net sections of Crown lands prospective for Viking oil in the Provost area of Alberta. Novus believes the assembled acreage meaningfully increases the company's future drilling and development inventory. Drilling on these lands is planned for early 2013. ■

MOST ACTIVE COMPANIES 2012

BEAVERHILL LAKE/ SLAVE POINT CARBONATE

1. Pinecrest Energy Inc.
2. Penn West Petroleum Ltd.
3. Lone Pine Resources Canada Ltd.
4. Second Wave Petroleum Inc.
5. Shell Canada Limited
6. Surge Energy Inc.
7. Dolomite Energy Inc.
8. Border Petroleum Corp.
9. Encana Corporation
10. Mancal Energy Inc.

CARDIUM

1. PetroBakken Energy Ltd.
2. Vermilion Energy Inc.
3. Sinopec Daylight Energy Ltd.
4. Whitecap Resources Inc.
5. Spartan Oil Corp.
6. Bellatrix Exploration Ltd.
7. Penn West Petroleum Ltd.
8. ARC Resources Ltd.
9. Pengrowth Energy Corporation
10. Angle Energy Inc.

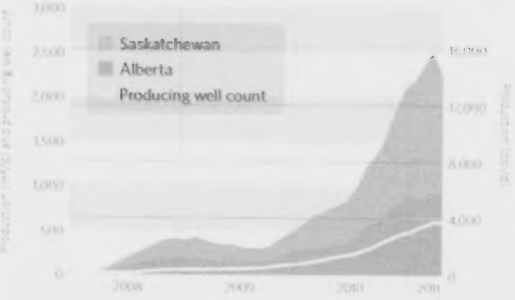
VIKING

1. Teine Energy Ltd.
2. Penn West Petroleum Ltd.
3. Polar Star Canadian Oil and Gas Inc.
4. Novus Energy Inc.
5. Raging River Exploration Inc.
6. Whitecap Resources Inc.
7. Pengrowth Energy Corporation
8. Crescent Point Energy Corp.
9. Renegade Petroleum Ltd.
10. Cutpick Energy Inc.

VIKING

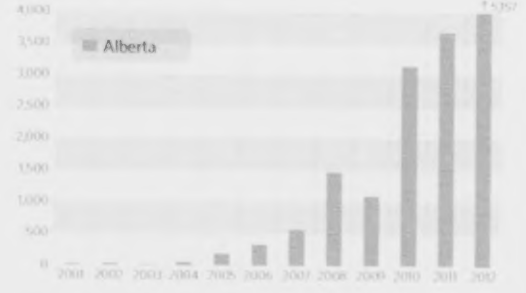
HORIZONTAL WELL LICENCES

TIGHT OIL PRODUCTION



ALBERTA OVERVIEW

HORIZONTAL WELL LICENCES



TIGHT OIL PRODUCTION

CONTACTS

Industry Associations

• Alberta Land Surveyors' Association	www.alsa.ab.ca
• Canadian Association of Geophysical Contractors	www.cagc.ca
• Canadian Association of Oilwell Drilling Contractors	www.caodc.ca
• Canadian Association of Petroleum Producers	www.capp.ca
• Canadian Energy Pipeline Association	www.cepa.com
• Canadian Gas Association	www.cga.ca
• Canadian Natural Gas	www.canadiannaturalgas.ca
• Canadian Natural Gas Vehicle Alliance	www.cngva.org
• Canadian Society of Exploration Geophysicists	www.cseg.ca
• Canadian Society of Petroleum Engineers	www.speca.ca
• Canadian Society for Unconventional Resources	www.csur.com
• Gas Processing Association Canada	www.gpacanada.com
• Petroleum Services Association of Canada	www.psac.ca
• Petroleum Technology Alliance Canada	www.ptac.org
• Explorers and Producers Association of Canada	www.explorersandproducers.ca

Alberta Government

• Alberta Energy	www.energy.gov.ab.ca
• Alberta Environment and Sustainable Resource Development	www.srd.alberta.ca
• Alberta Enterprise and Advanced Education	www.eae.alberta.ca
• Alberta Energy Regulator	www.aer.ca
• Alberta Innovates	www.albertainnovates.ca
• Alberta Geological Survey	www.ags.gov.ab.ca
• Alberta Surface Rights Board	www.surfacerights.gov.ab.ca

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